

REMARKS

STATUS OF THE CLAIMS

Claims 1-20 are pending in the application.

Claims 1, 10, and 19 are objected to due to informalities. According to the foregoing, claims 1, 10 and 19 are amended taking into consideration the Examiner's comments. Withdrawal of the objection is respectfully requested.

Claims 1-5, 9-14, and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Chandler et al. (U.S. 5,296,690).

Claims 6-8 and 15-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form.

According to the foregoing, the claims are amended, and, thus, the pending claims remain for reconsideration, which is respectfully requested. No new matter has been added.

REJECTION

The Office Action maintains from the previous Office Action rejection of claims 1-5, 9-14, and 18-20 under 35 USC 102(b) as being anticipated by Chandler (US Patent No. 5,296,690).

Office Action page 5, item 7, is the Response to Arguments, in which the Examiner asserts that the previous arguments have not been persuasive, because allegedly "Chandler teaches detecting a plurality of two-dimensional code regions when the bar code reader of Chandler is used a plurality of times, thereby constituting detecting a plurality of two-dimensional code regions corresponding to a respective plurality of two-dimensional codes."

Chandler in column 5, lines 40-53, discusses "ASIC controller 34 processes the stored image in DRAM 32 so as to determine the potential location or locations which are likely to contain a bar code symbol." Chandler divides the image area 48 (FIG. 3) into cells and assigns a score to each cell based upon approximate derivatives of scan lines (column 6, lines 40-68). Chandler column 7, line 52 to column 8, line 8 discuss "Each cell score is an indication of the likelihood of bar code activity. The complete set of scores for a given direction form a map of the likely regions of bar code activity" and determines bar code activity in all of the cells based upon the cell scores. Then, Chandler "determine[s] from the location scores ... the center of the region of bar code activity" (column 8, lines 9-12). Then, "after the region of interest has been

determined, ... the digital signal processor interpolates each of the scan lines of data for a given image area of interest at step 90" to detect the bar code (column 8, lines 25-51). Once all the stored regions containing bar code activity have been scanned, the partial scans are concatenated, or connected to form a complete scan at step 98, which is forwarded to a decoder (column 9, lines 27-34). Chandler column 6, lines 35-39, discuss "FIG. 3A shows a bar code symbol 58 ... A typical vertical cell 52 is shown superimposed over a portion of bar code symbol 58."

Thus, according to Chandler (column 6, lines 40-68; column 7, line 52 to column 8, line 8; column 8, lines 9-12; and column 8, lines 25-51), a bar code symbol 58 is detected based upon: dividing the image area into cells, then assigning a score to each cell based upon approximate derivatives of scan lines, then determining bar code activity in all of the cells based upon the cell scores, and then determining a region of bar code activity based upon the cells having bar code activity.

According to the foregoing, the independent claims 1, 10 and 19, using claim 1 as an example, are amended for clarity by partially retaining the originally filed claim language and further amending in view of FIG. 3 operations 102 and 103 of the present Application, as follows:

1. (CURRENTLY AMENDED) A two-dimensional code extraction method comprising:

inputting image data;

scanning said input image data in a square block unit of MXN pixels (M and N are positive integers);

detecting blocks that satisfy specific conditions from said scanned blocks;

detecting a plurality of ~~two-dimensional code~~block regions corresponding to respective plurality of two-dimensional codes, each ~~two-dimensional code~~block region comprising a number of neighboring and ~~continuous~~contiguous blocks from among said detected blocks that satisfy specific conditions from said scanned blocks;

detecting one or more two-dimensional code regions, each containing a corresponding detected block region comprising a predetermined number of the neighboring and contiguous blocks as a two-dimensional code; and

extracting one or more two dimensional codes from among the detected plurality of two-dimensional code regions that have more than a predetermined number of the neighboring and ~~continuous~~contiguous blocks.

The expression "continuous" has been inadvertently introduced in the claims, which is corrected to retain the expression "~~continuous~~contiguous" as originally filed.

Support for the claim amendments can be found, for example, in FIGS. 3, 9-12 and paragraphs 91-100 of the present Application, as the first and second embodiments. In contrast to Chandler's bar code symbol 58 detection (column 6, lines 40-68; column 7, line 52 to column 8, line 8; column 8, lines 9-12; and column 8, lines 25-51), which is based upon dividing the image area into cells, then assigning a score to each cell based upon approximate derivatives of scan lines, then determining bar code activity in all of the cells based upon the cell scores, and then determining a region of bar code activity based upon the cells having bar code activity, the claimed present invention provides "**detecting one or more two-dimensional code regions, each containing a corresponding detected block region comprising a predetermined number of the neighboring and contiguous blocks as a two-dimensional code.**" In other words, Chandler fails to disclose, either expressly or inherently (fails to disclose necessarily) "**detecting a plurality of two-dimensional code block regions** corresponding to respective plurality of two-dimensional codes, each ~~two-dimensional code block~~ region comprising a number of neighboring and ~~continuous~~contiguous blocks from among said detected blocks that satisfy specific conditions from said scanned blocks; **detecting ... a region ... containing ... a ... block region comprising a predetermined number of the neighboring and contiguous blocks.**" More particularly, the present Application FIG. 10 (square C) and FIG. 12 (outermost square), illustrate examples of the claimed present invention's "**two-dimensional code regions, each containing a corresponding detected block region comprising a predetermined number of the neighboring and contiguous blocks as a two-dimensional code.**" A benefit of the claimed present invention's "**detecting one or more two-dimensional code regions, each containing a corresponding detected block region,**" is even if the two-dimensional code is at an angle, the region containing the entire two-dimensional code can still be detected (paragraph 101 and FIGS. 10 and 12 of the present Application).

A prima facie case of anticipation cannot be established based upon Chandler, because Chandler fails to disclose, either expressly or inherently (fails to necessarily disclose), each and every element of the claimed present invention's "**detecting one or more two-dimensional code regions, each containing a corresponding detected block region comprising a predetermined number of the neighboring and contiguous blocks as a two-dimensional code.**"

Further, dependent claim 6 is amended as follows:

6. (CURRENTLY AMENDED) The two-dimensional code extraction method according to claim 1, wherein the detecting the two-dimensional code regions further comprising

scanning a detected ~~two-dimensional code~~block region from a point within said ~~two-dimensional code~~block region block by block having a predetermined size upward, downward, to the right and to the left of said point;

detecting a position such that a number of black pixels within said scanned block is less than a predetermined value; and

extracting a square area including said detected position as the two-dimensional code region that contains a block region, for each of the plurality of detected block regions.

Support for dependent claim 6 is found, for example, in FIG. 12 and paragraphs 96-100 of the present Application.

Further, dependent claim 8 is amended as follows:

8. (CURRENTLY AMENDED) The two-dimensional code extraction method according to claim 1, further comprising:

determining an angle of inclination of the input image or the angle of inclination of a detected two-dimensional code based upon a two-dimensional code region containing the detected block region comprising the predetermined number of the neighboring and contiguous blocks as the two-dimensional code region; and

correcting the angle of inclination, if the angle of inclination exceeds a specific value.

Support for claim 8 amendments can be found, for example, in paragraphs 68, 102-107 and paragraph 109 of the present Application.

In view of the remarks and claim amendments, withdrawal of the rejection of pending claims and allowance of pending claims is respectfully requested.

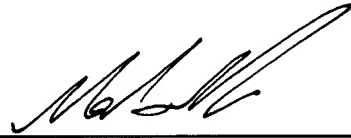
CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

Respectfully submitted,
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